

# **Bay Area Air Quality Management District**

939 Ellis Street  
San Francisco, CA 94109  
(415) 771-6000

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## **Proposed**

## **MAJOR FACILITY REVIEW PERMIT**

### **Issued To:**

**Los Esteros Critical Energy Facility**  
**Facility #B3289**

### **Facility Address:**

1515 Alviso-Milpitas Road  
San Jose, CA 95134

### **Mailing Address:**

P.O. Box 640130  
San Jose, CA 95164

### **Responsible Official**

Robert McCaffrey, Plant Manager  
408-847-5328

### **Facility Contact**

Dana Petrin, Compliance Specialist  
408-592-7915

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**Type of Facility:** Generation of Electricity  
**Primary SIC:** 4911  
**Product:** Electricity

**BAAQMD Permit Division Contact:**  
Dennis Jang, Air Quality Engineer  
415 749-4707

**ISSUED BY THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT**

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Jack P. Broadbent, Executive Officer/APCO

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Date

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## I. STANDARD CONDITIONS

### A. Administrative Requirements

The permit holder shall comply with all applicable requirements in the following regulations:

BAAQMD Regulation 1 - General Provisions and Definitions

(as amended by the District Board on 5/2/01);

SIP Regulation 1 - General Provisions and Definitions

(as approved by EPA through 6/28/99);

BAAQMD Regulation 2, Rule 1 - Permits, General Requirements

(as amended by the District Board on 8/1/01);

SIP Regulation 2, Rule 1 - Permits, General Requirements

(as approved by EPA through 1/26/99);

BAAQMD Regulation 2, Rule 2 - Permits, New Source Review

(as amended by the District Board on 5/17/00);

SIP Regulation 2, Rule 2 - Permits, New Source Review and Prevention of Significant Deterioration

(as approved by EPA through 1/26/99);

BAAQMD Regulation 2, Rule 4 - Permits, Emissions Banking

(as amended by the District Board on 5/17/00);

SIP Regulation 2, Rule 4 - Permits, Emissions Banking

(as approved by EPA through 1/26/99); and

BAAQMD Regulation 2, Rule 6 - Permits, Major Facility Review

(as amended by the District Board on 4/16/03).

### B. Conditions to Implement Regulation 2, Rule 6, Major Facility Review

1. This Major Facility Review Permit was issued on [ ] and expires on [when issued, enter 5<sup>th</sup> anniversary of issue date]. The permit holder shall submit a complete application for renewal of this Major Facility Review Permit no later than [when issued, enter date 6 months prior to permit expiration date] and no earlier than [when issued, enter date 12 months prior to expiration date]. **If a complete application for renewal has not been submitted in accordance with this deadline, the facility may not operate after** [when issued, enter 5<sup>th</sup> anniversary of issue date]. (Regulation 2-6-307, 404.2, & 409.6; MOP Volume II, Part 3, §4.2)
2. The permit holder shall comply with all conditions of this permit. The permit consists of this document and all appendices. Any non-compliance with the terms and conditions of this permit will constitute a violation of the law and will be grounds for enforcement action; permit termination, revocation and re-issuance, or modification; or denial of a permit renewal application. (Regulation 2-6-307; MOP Volume II, Part 3, §4.11)
3. In the event any enforcement action is brought as a result of a violation of any term or condition of this permit, the fact that it would have been necessary for the permit holder to halt or reduce the permitted activity in order to maintain compliance with such term or condition shall not be a defense to such enforcement action. (MOP Volume II, Part 3, §4.11)
4. This permit may be modified, revoked, reopened and reissued, or terminated for

## **I. Standard Conditions**

- cause. (Regulation 2-6-307, 409.8, 415; MOP Volume II, Part 3, §4.11)
5. The filing of a request by the facility for a permit modification, revocation and re-issuance, or termination, or the filing of a notification of planned changes or anticipated non-compliance does not stay the applicability of any permit condition. (Regulation 2-6-409.7; MOP Volume II, Part 3, §4.11)
  6. This permit does not convey any property rights of any sort, or any exclusive privilege. (Regulation 2-6-409.7; MOP Volume II, Part 3, §4.11)
  7. The permit holder shall supply within 30 days any information that the District requests in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. (Regulation 1-441, Regulation 2-6-409.4 & 501; MOP Volume II, Part 3, §4.11)
  8. Any records required to be maintained pursuant to this permit that the permit holder considers to contain proprietary or trade secret information shall be prominently designated as such. Copies of any such proprietary or trade secret information which are provided to the District shall be maintained by the District in a locked confidential file, provided, however, that requests from the public for the review of any such information shall be handled in accordance with the District's procedures set forth in Section 11 of the District's Administrative Code. (Regulation 2-6-419; MOP Volume II, Part 3, §4.11)
  9. Proprietary or trade secret information provided to EPA will be subject to the requirements of 40 CFR Part 2, Subpart B - Public Information, Confidentiality of Business Information. (40 CFR Part 2)
  10. The emissions inventory submitted with the application for this Major Facility Review Permit is an estimate of actual emissions or the potential to emit for the time period stated and is included only as one means of determining applicable requirements for emission sources. It does not establish, or constitute a basis for establishing, any new emission limitations. (MOP Volume II, Part 3, §4.11)
  11. The responsible official shall certify all documents submitted by the facility pursuant to the major facility review permit. The certification shall state that based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. The certifications shall be signed by a responsible official for the facility. (MOP Volume II, Part 3, §4.11)

### **C. Requirement to Pay Fees**

The permit holder shall pay annual fees in accordance with District Regulation 3, including Schedule P. (Regulation 2-6-402 & 409.13, Regulation 3; MOP Volume II, Part 3, §4.12)

### **D. Inspection and Entry**

Access to Facility: The permit holder shall provide reasonable access to the facility and equipment, which is subject to this permit to the APCO and/or to his or her designee. (Regulation 1-440, Regulation 2-6-409.3; MOP Volume II, Part 3, §4.14)

## I. Standard Conditions

### E. Records

1. The permit holder must provide any information, records, and reports requested or specified by the APCO. (Regulation 1-441, Regulation 2-6-409.4)
2. Notwithstanding the specific wording in any requirement, all records for federally enforceable requirements shall be maintained for at least five years from the date of creation of the record. (Regulation 2-6-501, Regulation 3; MOP Volume II, Part 3, §4.7)

### F. Monitoring Reports

Reports of all required monitoring must be submitted to the District at least once every six months, except where an applicable requirement specifies more frequent reporting. The first reporting period for this permit shall be [date of issuance] to [six months later]. The report shall be submitted by [one month after end of reporting period]. Subsequent reports shall be for the following periods: [\_\_\_\_ 1st through \_\_\_\_ 30th or 31st] and [\_\_\_\_ 1st through \_\_\_\_ 30th or 31st], and are due on the last day of the month after the end of the reporting period. All instances of non-compliance shall be clearly identified in these reports. The reports shall be certified by the responsible official as true, accurate, and complete. In addition, all instances of non-compliance with the permit shall be reported in writing to the District's Compliance and Enforcement Division within 10 calendar days of the discovery of the incident. Within 30 calendar days of the discovery of any incident of non-compliance, the facility shall submit a written report including the probable cause of non-compliance and any corrective or preventative actions. The reports shall be sent to the following address:

Director of Compliance and Enforcement  
Bay Area Air Quality Management District  
939 Ellis Street  
San Francisco, CA 94109  
Attn: Title V Reports

(Regulation 2-6-502, Regulation 3; MOP Volume II, Part 3, §4.7)

### G. Compliance Certification

Compliance certifications shall be submitted annually by the responsible official of this facility to the Bay Area Air Quality Management District and to the Environmental Protection Agency. The certification period will be \_\_\_\_ 1st to \_\_\_\_ 30th or 31st. The certification shall be submitted by \_\_\_\_ 30th or 31st of each year. The certification must list each applicable requirement, the compliance status, whether compliance was continuous or intermittent, the method used to determine compliance, and any other specific information required by the permit. The permit holder may satisfy this requirement through submittal of District-generated Compliance Certification forms. The certification should be directed to the District's Compliance and Enforcement Division at the address above, and a copy of the certification shall be sent to the Environmental Protection Agency at the following address:

Director of the Air Division  
USEPA, Region IX  
75 Hawthorne Street  
San Francisco, CA 94105

## **I. Standard Conditions**

Attention: Air-3

(MOP Volume II, Part 3, §4.5 and 4.15)

### **H. Emergency Provisions**

1. The permit holder may seek relief from enforcement action in the event of a breakdown, as defined by Regulation 1-208 of the District's Rules and Regulations, by following the procedures contained in Regulations 1-431 and 1-432. The District will thereafter determine whether breakdown relief will be granted in accordance with Regulation 1-433. (MOP Volume II, Part 3, §4.8)
2. The permit holder may seek relief from enforcement action for a violation of any of the terms and conditions of this permit by applying to the District's Hearing Board for a variance pursuant to Health and Safety Code Section 42350. The Hearing Board will determine after notice and hearing whether variance relief should be granted in accordance with the procedures and standards set forth in Health and Safety Code Section 42350 et seq. (MOP Volume II, Part 3, §4.8)
3. The granting by the District of breakdown relief or the issuance by the Hearing Board of a variance will not provide relief from federal enforcement. (MOP Volume II, Part 3, §4.8)

### **I. Severability**

In the event that any provision of this permit is invalidated by a court or tribunal of competent jurisdiction, or by the Administrator of the EPA, all remaining portions of the permit shall remain in full force and effect. (Regulation 2-6-409.5; MOP Volume II, Part 3, §4.10)

### **J. Miscellaneous Conditions**

1. The maximum capacity for each source as shown in Table II-A is the maximum allowable capacity. Exceedence of the maximum allowable capacity for any source is a violation of Regulation 2, Rule 1, Section 301. (Regulation 2-1-301)

### **K. Accidental Release**

This facility is subject to 40 CFR Part 68, Chemical Accident Prevention Provisions. The permit holder shall submit a risk management plan (RMP) by the date specified in §68.10. The permit holder shall also certify compliance with the requirements of Part 68 as part of the annual compliance certification, as required by Regulation 2, Rule 6. (40 CFR Part 68, Regulation 2, Rule 6)

### **L. Conditions to Implement Regulation 2, Rule 7, Acid Rain**

1. Every year starting January 30, 2003, the permit holder shall hold one sulfur dioxide allowance on January 30 for each ton of sulfur dioxide emitted during the preceding year from January 1 through December 31. (MOP Volume II, Part 3, §4.9)
2. The equipment installed for the continuous monitoring of CO<sub>2</sub> and NO<sub>x</sub> shall be maintained and operated in accordance with 40 CFR Parts 72 and 75. (Regulation 2-7, Acid Rain)

## **I. Standard Conditions**

3. A written Quality Assurance program must be established in accordance with 40 CFR Part 75, Appendix B for NO<sub>x</sub> which includes, but is not limited to: procedures for daily calibration testing, quarterly linearity testing, record keeping and reporting implementation, and relative accuracy testing. (Regulation 2-7, Acid Rain)
4. The permit holder shall monitor SO<sub>2</sub> emissions in accordance with 40 CFR Part 72 and 75. (Regulation 2-7, Acid Rain)
5. The permit holder shall submit quarterly Electronic Data Reports (EDRs) to EPA for Turbines, S-1, S-2, S-3, and S-4. These reports must be submitted within 30 days following the end of each calendar quarter and shall include all information required in § 75.64. (40 CFR Part 75)

## II. EQUIPMENT

**Table II-A - Permitted Sources**

Each of the following sources has been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. The capacities in this table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-301.

S-#	Description	Make or Type	Model	Capacity
1	Gas Turbine Generator, Natural Gas fired with water injection	General Electric	LM6000PC	45 MW 472.6 MM BTU/hr (HHV)
2	Gas Turbine Generator, Natural Gas fired with water injection	General Electric	LM6000PC	45 MW 472.6 MM BTU/hr (HHV)
3	Gas Turbine Generator, Natural Gas fired with water injection	General Electric	LM6000PC	45 MW 472.6 MM BTU/hr (HHV)
4	Gas Turbine Generator, Natural Gas fired with water injection	General Electric	LM6000PC	45 MW 472.6 MM BTU/hr (HHV)
5	Fire Water Pump Diesel Engine	Fairbanks Morse	JDFP-06WR	300 bhp 2.0 MM BTU/hr
6	Emergency Standby Generator Natural gas-fired Engine	Caterpillar	G351290 LE or equivalent	804 bhp 6.44 MM BTU/hr

**Table II-B – Abatement Devices**

A-#	Description	Source(s) Controlled	Applicable Requirement	Operating Parameters	Limit or Efficiency
1	Oxidation catalyst	1	BAAQMD Condition #19610 parts 19c & 19d	All conditions except startup and shutdown	4 ppmvd CO and 2 ppmvd POC @ 15% O <sub>2</sub>
2	Selective Catalytic Reduction System	1	BAAQMD Condition #19610 part 19a	All conditions except startup and shutdown	5 ppmvd NOx @ 15%O <sub>2</sub>



## II. Equipment

**Table II-B – Abatement Devices**

A-#	Description	Source(s) Controlled	Applicable Requirement	Operating Parameters	Limit or Efficiency
3	Oxidation catalyst	2	BAAQMD Condition #19610 parts 19c & 19d	All conditions except startup and shutdown	4 ppmvd CO and 2 ppmvd POC @ 15% O <sub>2</sub>
4	Selective Catalytic Reduction System	2	BAAQMD Condition #19610 part 19a	All conditions except startup and shutdown	5 ppmvd NOx @ 15%O <sub>2</sub>
5	Oxidation catalyst	3	BAAQMD Condition #19610 parts 19c & 19d	All conditions except startup and shutdown	4 ppmvd CO and 2 ppmvd POC @ 15% O <sub>2</sub>
6	Selective Catalytic Reduction System	3	BAAQMD Condition #19610 part 19a	All conditions except startup and shutdown	5 ppmvd NOx @ 15%O <sub>2</sub>
7	Oxidation catalyst	4	BAAQMD Condition #19610 parts 19c & 19d	All conditions except startup and shutdown	4 ppmvd CO and 2 ppmvd POC @ 15% O <sub>2</sub>
8	Selective Catalytic Reduction System	4	BAAQMD Condition #19610 part 19a	All conditions except startup and shutdown	5 ppmvd NOx @ 15%O <sub>2</sub>

### III. GENERALLY APPLICABLE REQUIREMENTS

The permit holder shall comply with all applicable requirements, including those specified in the BAAQMD and SIP rules and regulations and other federal requirements cited below. These requirements apply in a general manner to the facility and/or to sources exempt from the requirement to obtain a District Permit to Operate. The District has determined that these requirements will not be violated under normal, routine operations, and that no additional periodic monitoring or reporting to demonstrate compliance is warranted. In cases where a requirement, in addition to being generally applicable, is also specifically applicable to one or more sources, the requirement and the source are also included in Section IV, Source-Specific Applicable Requirements, of this permit. This section also contains provision that may apply to temporary sources.

The dates in parentheses in the Title column identify the versions of the regulations being cited and are, as applicable:

1. BAAQMD regulation(s): The date(s) of adoption or most recent amendment of the regulation by the District Board of Directors
2. Any federal requirement, including a version of a District regulation that has been approved into the SIP: The most recent date of EPA approval of any portion of the rule, encompassing all actions on the rule through that date

The full language of SIP requirements is on EPA Region 9's website. The address is included at the end of this permit.

**NOTE:**

There are differences between the current BAAQMD rules and the versions of the rules in the SIP. All sources must comply with both versions of a rule until US EPA has reviewed and approved the District's revision of the regulation.

**Table III**  
**Generally Applicable Requirements**

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)
BAAQMD Regulation 1	General Provisions and Definitions (5/2/01)	N
SIP Regulation 1	General Provisions and Definitions (6/28/99)	Y
BAAQMD Regulation 2, Rule 1	General Requirements (8/1/01)	N
BAAQMD 2-1-429	Federal Emissions Statement (6/7/95)	Y
SIP Regulation 2, Rule 1	General Requirements (1/26/99)	Y
BAAQMD Regulation 4	Air Pollution Episode Plan (3/20/91)	N
SIP Regulation 4	Air Pollution Episode Plan (8/06/90)	Y
BAAQMD Regulation 5	Open Burning (3/6/02)	N
SIP Regulation 5	Open Burning (9/4/98)	Y

### III. Generally Applicable Requirements

**Table III**  
**Generally Applicable Requirements**

<b>Applicable Requirement</b>	<b>Regulation Title or Description of Requirement</b>	<b>Federally Enforceable (Y/N)</b>
BAAQMD Regulation 6	Particulate Matter and Visible Emissions (12/19/90)	Y
BAAQMD Regulation 7	Odorous Substances (3/17/82)	N
BAAQMD Regulation 8, Rule 1	Organic Compounds - General Provisions (6/15/94)	Y
BAAQMD Regulation 8, Rule 2	Organic Compounds – Miscellaneous Operations (6/15/94)	Y
BAAQMD Regulation 8, Rule 3	Organic Compounds - Architectural Coatings (11/21/01)	N
SIP Regulation 8, Rule 3	Organic Compounds - Architectural Coatings (12/18/98)	Y
BAAQMD Regulation 8, Rule 4	Organic compounds - General Solvent and Surface Coating Operations (10/16/02)	N
SIP Regulation 8, Rule 4	Organic compounds - General Solvent and Surface Coating Operations (12/23/97)	Y
BAAQMD Regulation 8, Rule 40	Organic Compounds - Aeration of Contaminated Soil and Removal of Underground Storage Tanks (12/15/99)	Y
BAAQMD Regulation 8, Rule 47	Organic Compounds - Air Stripping and Soil Vapor Extraction Operations (6/15/94)	Y
BAAQMD Regulation 8, Rule 49	Organic Compounds - Aerosol Paint Products (12/20/95)	N
SIP Regulation 8, Rule 49	Organic Compounds - Aerosol Paint Products (3/22/95)	Y
BAAQMD Regulation 8, Rule 51	Organic Compounds - Adhesive and Sealant Products (7/17/02)	N
SIP Regulation 8, Rule 51	Organic Compounds - Adhesive and Sealant Products (2/26/02)	Y
BAAQMD Regulation 11, Rule 2	Hazardous Pollutants - Asbestos Demolition, Renovation and Manufacturing (10/7/98)	Y
BAAQMD Regulation 12, Rule 4	Miscellaneous Standards of Performance - Sandblasting (7/11/90)	N
SIP Regulation 12, Rule 4	Miscellaneous Standards of Performance - Sandblasting (9/2/81)	Y
California Health and Safety Code Section 44300 et seq.	Air Toxics “Hot Spots” Information and Assessment Act of 1987	N
40 CFR Part 61, Subpart M	National Emission Standards for Hazardous Air Pollutants – National Emission Standard for Asbestos (6/19/95)	Y

#### IV. SOURCE-SPECIFIC APPLICABLE REQUIREMENTS

The permit holder shall comply with all applicable requirements, including those specified in the BAAQMD and SIP rules and regulations and other federal requirements cited below. The requirements cited in the following tables apply in a specific manner to the indicated source(s).

The dates in parentheses in the Title column identify the versions of the regulations being cited and are, as applicable:

1. BAAQMD regulation(s): The date(s) of adoption or most recent amendment of the regulation by the District Board of Directors
2. Any federal requirement, including a version of a District regulation that has been approved into the SIP: The most recent date of EPA approval of any portion of the rule, encompassing all actions on the rule through that date

The full text of each permit condition cited is included in Section VI, Permit Conditions, of this permit. The full language of SIP requirements is on EPA Region 9's website. The address is included at the end of this permit. All other text may be found in the regulations themselves.

**Table IV - A**  
**Source-specific Applicable Requirements**  
**S-1, S-2, S-3, & S-4 COMBUSTION GAS TURBINES WITH WATER INJECTION**

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
<b>BAAQMD Regulation 1</b>	<b>General Provisions and Definitions (11/3/93)</b>		
1-522	Continuous Emission Monitoring and Recordkeeping Procedures	N	
1-522.1	approval of plans and specifications	Y	
1-522.2	scheduling requirements	Y	
1-522.3	CEM performance testing	Y	
1-522.4	reporting of inoperative CEMs	Y	
1-522.5	CEM calibration requirements	Y	
1-522.6	CEM accuracy requirements	Y	
1-522.7	emission limit exceedence reporting requirements	N	
1-522.8	monitoring data submittal requirements	Y	
1-522.9	recordkeeping requirements	Y	
1-523	Parametric Monitoring and Recordkeeping Procedures	Y	
1-523.1	Parametric monitor periods of inoperation	Y	
1-523.2	Limits on periods of inoperation	Y	

## IV. Source-Specific Applicable Requirements

**Table IV - A**  
**Source-specific Applicable Requirements**  
**S-1, S-2, S-3, & S-4 COMBUSTION GAS TURBINES WITH WATER INJECTION**

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
1-523.3	Reports of Violations	N	
1-523.4	Records	Y	
1-523.5	Maintenance and calibration	N	
1-602	Area and Continuous Emission Monitoring Requirements	Y	
<b>SIP Regulation 1</b>	<b>General Provisions and Definitions (6/28/99)</b>		
1-522	Continuous Emission Monitoring and Recordkeeping Procedures	Y	
1-522.7	Monitor excesses	Y	
1-523	Parametric Monitoring and Recordkeeping Procedures	Y	
1-523.3	Reports of Violations	Y	
<b>BAAQMD Regulation 2, Rule 1</b>	<b>Regulation 2, Rule 1 - Permits, General Requirements (5/2/01)</b>		
2-1-501	Monitors	Y	
<b>BAAQMD Regulation 6</b>	<b>Particulate Matter and Visible Emissions (12/19/90)</b>		
6-301	Ringelmann Number 1 Limitation	Y	
6-305	Visible Particles	Y	
6-310	Particulate Weight Limitation	Y	
6-401	Appearance of Emissions	Y	
<b>BAAQMD Regulation 9, Rule 1</b>	<b>Inorganic Gaseous Pollutants – Sulfur Dioxide (3/15/95)</b>		
9-1-301	Limitations on Ground Level Concentrations	Y	
9-1-302	General Emission Limitations	Y	
<b>BAAQMD Regulation 9, Rule 9</b>	<b>Inorganic Gaseous Pollutants-Nitrogen Oxides from Stationary Gas Turbines (9/21/94)</b>		
9-9-113	Exemption – Inspection/Maintenance	Y	
9-9-114	Exemption – Start-Up/Shutdown	Y	
9-9-301	Emission Limits, General	Y	
9-9-301.3	Emission Limits- Turbines Rated $\geq 10$ MW w/SCR	Y	
9-9-501	Monitoring and recordkeeping requirements	Y	

## IV. Source-Specific Applicable Requirements

**Table IV - A**  
**Source-specific Applicable Requirements**  
**S-1, S-2, S-3, & S-4 COMBUSTION GAS TURBINES WITH WATER INJECTION**

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
<b>BAAQMD Manual of Procedures, Volume V</b>	<b>Continuous Emission Monitoring Policy and Procedures (1/20/82)</b>	Y	
<b>40 CFR 60</b>	<b>Standards of Performance for New Stationary Sources (12/23/71)</b>	Y	
<b>Subpart A</b>	<b>General Provisions</b>	Y	
60.7(a)	Written notification	Y	
60.7(b)	Records	Y	
60.8	Performance Tests	Y	
60.9	Availability of Information	Y	
60.11(a)	Compliance with standards and maintenance requirements	Y	
60.11(d)	Minimizing emissions	Y	
60.12	Circumvention	Y	
60.13	Monitoring Requirements	Y	
60.19	General notification and reporting requirements	Y	
<b>Subpart GG</b>	<b>Standards of Performance for Stationary Gas Turbines (1/27/82)</b>		
60.332(a)(1)	NOx limit	Y	
60.333	Performance Standards, SO2	Y	
60.334(b)(2)	Sulfur and nitrogen content of fuel	Y	
60.335	Test Methods and Procedures	Y	
<b>40 CFR part 72</b>	<b>Permits Regulation (Title IV – Acid Rain Program)</b>	Y	
<b>40 CFR part 75</b>	<b>Continuous Emissions Monitoring</b>	Y	
<b>BAAQMD Condition #19610</b>			
Definitions	Definitions	Y	
part 1	Minimization of emissions during commissioning period (Cumulative Increase)	Y	
part 2	Tuning to minimize emissions (Cumulative Increase)	Y	
part 3	Installation, adjust and operate of SCR and oxidation catalyst as early as possible (Cumulative Increase)	Y	
part 4	Compliance with NOx and CO emission limits (BACT, Offsets)	Y	
part 5	Submittal of commissioning plan (Cumulative Increase)	Y	

## IV. Source-Specific Applicable Requirements

**Table IV - A**  
**Source-specific Applicable Requirements**  
**S-1, S-2, S-3, & S-4 COMBUSTION GAS TURBINES WITH WATER INJECTION**

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
part 6	Continuous emission monitors and recorders for firing hours, fuel flow rates, NOx, CO, and oxygen concentrations (9-9-501, BACT, Offsets)	Y	
part 7	Monitors installed prior to first firing (9-9-501, BACT, Offsets)	Y	
part 8	Limit on uncontrolled operation during commissioning (Offsets)	Y	
part 9	Mass emission rates during commissioning included in annual limits (Offsets)	Y	
part 10	Mass emission rates during commissioning (Offsets)	Y	
part 11	Source test (BACT for NOx and CO, Offsets)	Y	
part 12	Consistency with analyses (2-1-403)	Y	
part 13	Conflicts between conditions (1-102)	Y	
part 14	Reimbursement of costs (2-1-303)	Y	
part 15	Access to Records and Facilities (1-440, 1-441)	Y	
part 16	Notification of Commencement of Operation (2-1-302)	Y	
part 17	Operations (2-1-307)	Y	
part 18	Visible emissions (6-301)	Y	
part 19	Emission Limits		
part 19a	Emission Limit for NOX (BACT)	Y	
part 19b	Emission Limit for ammonia (BACT)	N	
part 19c	Emission Limit for carbon monoxide (BACT)	Y	
part 19d	Emission Limit for precursor organic compounds (BACT)	Y	
part 19e	Emission Limit for PM10 (BACT, Cumulative Increase)	Y	
part 19f	Emission Limit for SOX (BACT, Cumulative Increase)	Y	
part 20	Turbine Startup (Cumulative Increase)	Y	
part 21	Turbine Shutdown (Cumulative Increase)	Y	
part 22	Mass emission limits (Cumulative Increase)	Y	
part 23	Acid Limit (Cumulative Increase)	Y	
part 24	Operational Limits (Cumulative Increase)	Y	
part 25	Monitoring requirements (Cumulative Increase, BACT, 40 CFR 75, 40 CFR 60)	Y	
part 26	Source testing/RATA (40 CFR 60, BAAQMD Manual of Procedures Volume IV)	Y	
part 27	Compliance with PSD and Regulation 2-2 306	Y	
part 28	Quality assurance program (40 CFR Part 75, Appendix B and 40 CFR Part 60, Appendix F)	Y	
part 29	Compliance with 40 CFR 60, Subpart GG (NSPS)	Y	

## IV. Source-Specific Applicable Requirements

**Table IV - A**  
**Source-specific Applicable Requirements**  
**S-1, S-2, S-3, & S-4 COMBUSTION GAS TURBINES WITH WATER INJECTION**

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
part 30	Breakdowns (1-208)	Y	
part 31	Breakdown reports (1-208)	Y	
part 32a	Records of fuel use and heat input (Cumulative Increase)	Y	
part 32b	Records of date and time of each occurrence, duration and type start-up shutdown, or malfunction (BACT, Cumulative Increase)	Y	
part 32c	Records of emission measurements (BACT, Cumulative Increase, 40 CFR 60, 40 CFR 75)	Y	
part 32d	Records of hours of operation (Cumulative Increase)	Y	
part 32e	Records of NOX, CO, and ammonia emissions (BACT)	Y	
part 32f	Records of continuous emission monitoring systems (1-522)	Y	
part 33	Records retention for five years (2-6-501)	Y	
part 34a	Reports of fuel use and heat input (Cumulative Increase)	Y	
part 34	Reports of mass emission rates (BACT, Cumulative Increase)	Y	
part 34c	Reports of excess emissions (BACT, Cumulative Increase)	Y	
part 34d	Reports of nature and cause of excess emissions (BACT, Cumulative Increase)	Y	
part 34e	Reports of continuous emission monitoring systems downtime (1-522)	Y	
part 34f	Negative declarations (BACT, Cumulative Increase)	Y	
part 34g	Reports of fuel analyses (Cumulative Increase, 40 CFR 75)	Y	
part 35	Emission offsets (Emission Offsets)	Y	
part 36	District Operating permit (Regulation 2, Rules 2 and 6)	Y	
part 37	Title IV and Title V permits (Regulation 2, Rules 2 and 7)	Y	
part 38	Sunset Provision (California State Resources Code, Section 25552)		
part 47	Maximum projected annual toxic air contaminant emissions (TRMP)	N	
part 48	Maximum projected annual TAC emissions of 16,560,000 MM BTU (TRMP)	N	
part 49	Initial and biennial TAC source testing (TRMP)	N	



## IV. Source-Specific Applicable Requirements

**Table IV - B**  
**Source-specific Applicable Requirements**  
**S-5 FIREWATER PUMP DIESEL ENGINE**

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
<b>BAAQMD Regulation 6</b>	<b>Particulate Matter and Visible Emissions (12/19/90)</b>		
6-303	Ringelmann Number 2 Limitation	Y	
6-305	Visible Particles	Y	
6-310	Particulate Weight Limitation	Y	
6-401	Appearance of Emissions	Y	
<b>BAAQMD Regulation 9, Rule 1</b>	<b>Inorganic Gaseous Pollutants – Sulfur Dioxide (3/15/95)</b>		
9-1-301	Limitations on Ground Level Concentrations	Y	
9-1-304	Fuel Burning (Liquid and Solid Fuels)	Y	
<b>BAAQMD Regulation 9, Rule 8</b>	<b>Inorganic Gaseous Pollutants-Nitrogen Oxides from Stationary Engines (8/1/01)</b>		
9-8-330	Emergency Standby Engines, Hours of Operation	N	
9-8-530	Emergency standby engines, monitoring and recordkeeping	N	
<b>BAAQMD Condition #19610</b>			
part 39	Fuel sulfur content limit (TRMP, Cumulative Increase)	Y	
part 40	Limit on reliability testing and non-emergency operation (Cumulative Increase, Regulations 9-8-231 and 9-8-330)	Y	
part 41	Engine Operation Counter and Recorder (Cumulative Increase)	Y	
part 42	Record keeping (Cumulative Increase)	Y	

**Table IV - C**  
**Source-specific Applicable Requirements**  
**S-6 STANDBY GENERATOR NATURAL GAS-FIRED ENGINE**

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
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## IV. Source-Specific Applicable Requirements

**Table IV - C**  
**Source-specific Applicable Requirements**  
**S-6 STANDBY GENERATOR NATURAL GAS-FIRED ENGINE**

<b>Applicable Requirement</b>	<b>Regulation Title or Description of Requirement</b>	<b>Federally Enforceable (Y/N)</b>	<b>Future Effective Date</b>
<b>BAAQMD Regulation 6</b>	<b>Particulate Matter and Visible Emissions (12/19/90)</b>		
6-303	Ringelmann Number 2 Limitation	Y	
6-305	Visible Particles	Y	
6-310	Particulate Weight Limitation	Y	
6-401	Appearance of Emissions	Y	
<b>BAAQMD Regulation 9, Rule 1</b>	<b>Inorganic Gaseous Pollutants – Sulfur Dioxide (3/15/95)</b>		
9-1-301	Limitations on Ground Level Concentrations	Y	
9-1-302	General Emission Limitation	Y	
<b>BAAQMD Regulation 9, Rule 8</b>	<b>Inorganic Gaseous Pollutants-Nitrogen Oxides from Stationary Engines (8/1/01)</b>		
9-8-303	Emergency Standby Engines, Hours of Operation	N	
9-8-530	Emergency standby engines, monitoring and recordkeeping	N	
<b>BAAQMD Condition #19610</b>			
part 43	Natural gas firing Requirement (TRMP, Cumulative Increase)	Y	
part 44	Limit on reliability testing and non-emergency operation (Cumulative Increase, Regulations 9-8-231 and 9-8-330)	Y	
part 45	Engine Operation Counter and Recorder (Cumulative Increase)	Y	
part 46	Record keeping (Cumulative Increase)	Y	

## V. SCHEDULE OF COMPLIANCE

The permit holder shall comply with all applicable requirements cited in this permit. The permit holder shall also comply with applicable requirements that become effective during the term of this permit on a timely basis.

## VI. PERMIT CONDITIONS

Any condition that is preceded by an asterisk is not federally enforceable.

Condition # 19610

### Definitions:

<del>Clock</del> -Hour:	Any continuous 60-minute period beginning on the hour.
<del>Calendar</del> -Day:	Any continuous 24-hour period beginning at 12:00 AM or 0000 hours.
Year:	Any consecutive twelve-month period of time
Heat Input:	All heat inputs refer to the heat input at the higher heating value (HHV) of the fuel, in Btu/scf.
Firing Hours:	Period of time, during which fuel is flowing to a unit, measured in fifteen-minute increments.
MM Btu:	million British thermal units
Gas Turbine Start-up Mode:	The time beginning with the introduction of continuous fuel flow to the Gas Turbine until the requirements listed in <u>Part 19 Condition 20</u> are met, but not to exceed 60 minutes.
Gas Turbine Shutdown Mode:	The time from non-compliance with any requirement listed in <u>Part 19 Condition 20</u> until termination of fuel flow to the Gas Turbine, but not to exceed 30 minutes.
Corrected Concentration:	The concentration of any pollutant (generally NO <sub>x</sub> , CO or NH <sub>3</sub> ) corrected to a standard stack gas oxygen concentration. For an emission point (exhaust of a Gas Turbine) the standard stack gas oxygen concentration is 15% O <sub>2</sub> by volume on a dry basis
Commissioning Activities:	All testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and the construction contractor to insure safe and reliable steady state operation of the gas turbines, heat recovery steam generators, steam turbine, and associated electrical delivery systems.
Commissioning Period:	The Period shall commence when all mechanical, electrical, and control systems are installed and individual system start-up has been completed, or when a gas turbine is first fired, whichever occurs first. The period shall terminate when the plant has completed performance testing, is available for commercial operation, and has initiated sales to the power exchange. In no event shall the Commissioning Period exceed 120 days unless

## VI. Permit Conditions

	the applicant has made a written request for an extension and the District has granted such an extension. In no case may the Commissioning Period exceed 180 days.
Alternate Calculation:	A District approved calculation used to calculate mass emission data during a period when the CEM or other monitoring system is not capable of calculating mass emissions.
Precursor Organic Compounds (POCs):	Any compound of carbon, excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate

### EQUIPMENT DESCRIPTION:

This Authority To Construct Is Issued And Is Valid For This Equipment Only While It Is In The Configuration Set Forth In The Following Description:

Installation of four Simple-Cycle Gas Turbine Generators Consisting Of:

1. Simple Cycle Gas Turbine, General Electric LM6000PC, Maximum Heat Input 472.6 MMBtu/hr, Nominal Electrical Output 45 MW, Natural Gas-Fired.
2. Selective Catalytic Reduction (SCR) NOx Control System.
3. Ammonia Injection System.  
(including the ammonia storage tank and control system)
4. Oxidation Catalyst (OC) System.
5. Continuous emission monitoring system (CEMS) designed to continuously record the measured gaseous concentrations, and calculate and continuously monitor and record the NOx and CO concentrations in ppmvd corrected to 15% oxygen on a dry basis. The CEM shall also calculate, using District approved methods, and record any mass limits required by these conditions.

### PERMIT CONDITIONS:

#### **Conditions for the Commissioning Period:**

1. The owner/operator of the Los Esteros Critical Energy Facility shall minimize emissions of carbon monoxide and nitrogen oxides from S-1, S-2, S-3 and S-4 Gas Turbine to the maximum extent possible during the commissioning period. ~~Conditions~~ Parts 1 through 11 shall only apply during the commissioning period as defined above. Unless noted, parts 12 through 49 shall only apply after the commissioning period has ended. (Basis: Cumulative

## VI. Permit Conditions

Increase)

2. At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the owner/operator shall tune the S-1, S-2, S-3 and S-4 Gas Turbine combustors to minimize the emissions of carbon monoxide and nitrogen oxides. (Basis: Cumulative Increase)
3. At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the owner/operator shall install, adjust and operate the SCR Systems (A-2, A-4, A-6 & A-8) and OC Systems (A-1, A-3, A-5 & A-7) to minimize the emissions of nitrogen oxides and carbon monoxide from S-1, S-2, S-3 and S-4 Gas Turbines. (Basis: Cumulative Increase)
4. Coincident with the steady-state operation of SCR Systems (A-2, A-4, A-6 & A-8) and OC Systems (A-1, A-3, A-5 & A-7) pursuant to part 3 the owner/operator shall operate the facility in a manner such that the Gas Turbine (S-1, S-2, S-3 and S-4) comply with the NO<sub>x</sub> and CO emission limitations specified in conditions 19a and 19c. (Basis: BACT, offsets)
5. The owner/operator of the Los Esteros Critical Energy Facility shall submit a plan to the District Permit Services Division at least two weeks prior to first firing of S-1, S-2, S-3 and S-4 Gas Turbines describing the procedures to be followed during the commissioning of the turbines. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not be limited to, the tuning of the water injection, the installation and operation of the required emission control systems, the installation, calibration, and testing of the CO and NO<sub>x</sub> continuous emission monitors, and any activities requiring the firing of the Gas Turbines (S-1, S-2, S-3 and S-4) without abatement by their respective SCR Systems. The Gas Turbines (S-1, S-2, S-3 and S-4) shall be fired no sooner than fourteen days after the District receives the commissioning plan. (Basis: Cumulative Increase)
6. During the commissioning period, the owner/operator of the Los Esteros Critical Energy Facility shall demonstrate compliance with parts 8 through 10 through the use of properly operated and maintained continuous emission monitors and data recorders for the following parameters:
  - a. firing hours
  - b. fuel flow rates
  - c. stack gas nitrogen oxide emission concentrations,
  - d. stack gas carbon monoxide emission concentrations
  - e. stack gas oxygen concentrations.
  - f. The monitored parameters shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation) for the S-1, S-2, S-3 and S-4 Gas Turbines. The owner/operator shall use District-approved methods to calculate heat input rates, nitrogen dioxide mass emission rates, carbon monoxide mass emission rates, and NO<sub>x</sub> and CO emission concentrations, summarized for each clock

## VI. Permit Conditions

hour and each calendar day. All records shall be retained on site for at least 5 years from the date of entry and made available to District personnel upon request. (Basis: Cumulative Increase)

7. The owner/operator shall install, calibrate and make operational the District-approved continuous monitors specified in part 6 prior to first firing of each turbine (S-1, S-2, S-3 and S-4 Gas Turbines). After first firing of the turbine, the owner/operator shall adjust the detection range of these continuous emission monitors as necessary to accurately measure the resulting range of CO and NO<sub>x</sub> emission concentrations. The type, specifications, and location of these monitors shall be subject to District review and approval. (Basis: BAAQMD 9-9-501, BACT, offsets)
8. The owner/operator shall not operate the facility such that the number of firing hours of S-1, S-2, S-3 and S-4 Gas Turbines without abatement by SCR or ~~OCCO~~ Systems exceed 100 hours per turbine during the commissioning period. Such operation of the S-1, S-2, S-3 and S-4 Gas Turbines without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR or OC system in place. Upon completion of these activities, the owner/operator shall provide written notice to the District Permit Services and Enforcement Divisions and the unused balance of the 100 firing hours without abatement shall expire. The owner/operator shall maintain records of all gas turbine firing hours without the SCR and/or OC systems in place and operational. (Basis: offsets)
9. The total mass emissions of nitrogen oxides, carbon monoxide, precursor organic compounds, PM<sub>10</sub>, and sulfur dioxide that are emitted by the S-1, S-2, S-3 and S-4 Gas Turbines during the commissioning period shall accrue towards the consecutive twelve-month emission limitations specified in ~~part condition~~ 22. (Basis: offsets)
10. The owner/operator shall not operate the facility such that the pollutant mass emissions from the facility (S-1, S-2, S-3 and S-4 Gas Turbines) exceed the following limits during the commissioning period. These emission limits shall include emissions resulting from the start-up and shutdown of the S-1, S-2, S-3 and S-4 Gas Turbines.

	<u>Without Catalyst</u>		<u>With Catalyst</u>	
a. NO <sub>x</sub> (as NO <sub>2</sub> )	1224 lb/day	102 lb/hr	410 lb/day	34.2 lb/hr
b. CO	1056 lb/day	88 lb/hr	300 lb/day	25 lb/hr
c. POC (as CH <sub>4</sub> )	114 lb/day		114 lb/day	
d. PM <sub>10</sub>	240 lb/day		240 lb/day	
e. SO <sub>2</sub>	32 lb/day		32 lb/day	

(Basis: Cumulative Increase)

11. Within sixty (60) days of startup, the Owner/Operator shall conduct a District approved source test using external continuous emission monitors to determine compliance with part 10. The source test shall determine NO<sub>x</sub>, CO, and POC emissions during start-up and shutdown of the

## VI. Permit Conditions

gas turbines. The POC emissions shall be analyzed for methane and ethane to account for the presence of unburned natural gas. The source test shall include a minimum of three start-up and three shutdown periods. Thirty (30) days before the execution of the source tests, the Owner/Operator shall submit to the District a detailed source test plan designed to satisfy the requirements of this condition. The Owner/Operator shall be notified of any necessary modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed approved. The Owner/Operator shall incorporate the District comments into the test plan. The Owner/Operator shall notify the District within ten (10) days prior to the planned source testing date. Source test results shall be submitted to the District within 30 days of the source testing date. These results can be used to satisfy applicable source testing requirements in part ~~Condition No. 26~~ below. (Basis: offsets)

### Conditions for Operation:

12. Consistency with Analyses: Operation of this equipment shall be conducted in accordance with all information submitted with the application (and supplements thereof) and the analyses under which this permit is issued unless otherwise noted below. (Basis: BAAQMD 2-1-403)
13. Conflicts Between Conditions: In the event that any condition herein is determined to be in conflict with any other condition contained herein, then, if principles of law do not provide to the contrary, the condition most protective of air quality and public health and safety shall prevail to the extent feasible. (Basis: BAAQMD 1-102)
14. Reimbursement of Costs: All reasonable expenses, as set forth in the District's rules or regulations, incurred by the District for all activities that follow the issuance of this permit, including but not limited to permit condition implementation, compliance verification and emergency response, directly and necessarily related to enforcement of the permit shall be reimbursed by the owner/operator as required by the District's rules or regulations. (Basis: BAAQMD 2-1-303)
15. Access to Records and Facilities: As to any condition that requires for its effective enforcement the inspection of records or facilities by representatives of the District, the Air Resources Board (ARB), the U.S. Environmental Protection Agency (U.S. EPA), or the California Energy Commission (CEC), the owner/operator shall make such records available or provide access to such facilities upon notice from representatives of the District, ARB, U.S. EPA, or CEC. Access shall mean access consistent with California Health and Safety Code Section 41510 and Clean Air Act Section 114A. (Basis: BAAQMD 1-440, 1-441)
16. Notification of Commencement of Operation: The owner/operator shall notify the District of the date of anticipated commencement of turbine operation not less than 10 days prior to such date. Temporary operations under this permit are granted consistent with the District's rules and regulations. (Basis: BAAQMD 2-1-302)

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17. Operations: The gas turbine, emissions controls, CEMS and associated equipment shall be properly maintained and kept in good operating condition at all times when the equipment is in operation. (Basis: BAAQMD 2-1-307)

18. Visible Emissions: No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour, which is as dark or darker than Ringelmann 1 or equivalent 20% opacity. (Basis: BAAQMD 6-301)

19. Emissions Limits:

The owner/operator shall operate the facility such that none of the following limits are exceeded:

- a. The Oxides of nitrogen (NO<sub>x</sub>) emissions from the gas turbine shall not exceed 5.0 ppmvd @ 15% O<sub>2</sub> (3-hour rolling average), except during periods of startup and shutdown as defined in this permit. The NO<sub>x</sub> emission concentration shall be verified by a District-approved continuous emission monitoring system (CEMS) and during any required source test. (basis: BACT)
- b. Ammonia emissions from the gas turbine shall not exceed 10 ppmvd @ 15% O<sub>2</sub> (3-hour rolling average), except during periods of startup and shutdown as defined in this permit. The ammonia emission concentration shall be verified by the continuous recording of the ratio of the ammonia injection rate to the NO<sub>x</sub> inlet rate into the SCR control system (molar ratio). The maximum allowable NH<sub>3</sub>/NO<sub>x</sub> molar ratio shall be determined during any required source test, and shall not be exceeded until reestablished through another valid source test. (basis: BACT)
- c. Carbon monoxide (CO) emissions from the gas turbine shall not exceed 4 ppmvd @ 15 % O<sub>2</sub> (3-hour rolling average), except during periods of startup and shutdown as defined in this permit. The CO emission concentration shall be verified by a District-approved CEMS and during any required source test. (basis: BACT)
- d. Precursor organic compound (POC) emissions from the gas turbine shall not exceed 2 ppmvd @ 15% O<sub>2</sub> (3-hour rolling average), except during periods of startup and shutdown as defined in this permit. The POC emission concentration shall be verified during any required source test. (basis: BACT)
- e. Particulate matter emissions less than ten microns in diameter (PM<sub>10</sub>) from each gas turbine shall not exceed 2.5 pounds per hour, except during periods of startup and shutdown as defined in this permit. The PM<sub>10</sub> mass emission rate shall be verified during any required source test. (basis: BACT & cumulative increase)
- f. Oxides of sulfur emissions (SO<sub>x</sub>) from each gas turbine shall not exceed 0.33 pounds per hour, except during periods of startup and shutdown as defined in this permit. The SO<sub>x</sub>



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emission rate shall be verified during any required source test. (basis: BACT & cumulative increase)

20. Turbine Startup: The owner/operator shall not operate the facility such that startup of the gas turbine exceeds a time period of 60 minutes each per occurrence, or another time period based on good engineering practice and approved in advance by the District. The startup applicable period begins with the turbine's initial firing and continues until the unit meets the emission concentration limits. (Basis: Cumulative increase)
21. Turbine Shutdown: The owner/operator shall not operate the facility such that shutdown of the gas turbine exceeds a time period of 30 minutes each per occurrence, or another time period based on good engineering practice and approved in advance by the District. Shutdown begins with initiation of the turbine shutdown sequence and ends with the cessation of turbine firing. (Basis: Cumulative increase)
22. Mass Emission Limits: The owner/operator shall not operate the facility such that the mass emissions from the S-1, S-2, S-3 and S-4 Gas Turbines exceeds the daily and annual mass emission limits listed in Table 1 below. The owner/operator shall implement process computer data logging including running totals to demonstrate compliance with Table 1 limits without further calculations

**Table 1 – Mass Emission Limits (Including Startups and Shutdowns)**

Pollutant	Each turbine lb/day	Daily (4 units) (lb)	Annual (tons)
NO <sub>x</sub> (as NO <sub>2</sub> )	205.2	821	74.9
POC	28.3	114	20.8
CO	99.8	399	72.9
SO <sub>x</sub> (as SO <sub>2</sub> )	7.9	32	5.8
PM <sub>10</sub>	60.0	240	43.8
NH <sub>3</sub>	151.7	607	110.7

The daily mass limits are on a Calendar Day basis as defined under Permit Conditions. The Annual Mass Limit is based on a rolling 8760-hour period ending on the last hour. Compliance shall be based on calendar average one-hour readings through the use of process monitors (e.g., fuel use meters), CEMS, and source test results; and the monitoring, recordkeeping and reporting conditions of this permit. If any part of the CEM, involved in the mass emission calculations, is inoperative for more than three hours of plant operation, the mass data for the inoperative period shall be calculated using a District approved Alternate Calculation.  
 (Basis: Cumulative increase)

23. Acid Limit: The owner/operator shall not operate the facility such that sulfuric acid emissions (SAM) from S-1 through S-4 combined exceed 7 tons in any consecutive four quarters. (Basis: PSD)

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24. Operational Limits: In order to comply with the emission limits of this rule, the owner/operator shall comply with the following operational limits:

- a. The heat input to any gas turbine shall not exceed:  
Hourly: 472.6 MM BTU/hr  
Daily: 11,342 MM BTU/day  
The combined heat input for all four turbines shall not exceed:  
Annual: 16,560,000 MM BTU/yr
- b. Only PUC Quality natural gas (General Order 58-a) shall be used to fire the gas turbine.  
The natural gas shall not contain total sulfur in concentrations exceeding 0.25 gr/100 scf.
- c. The owner/operator of the gas turbine shall comply with the daily and annual emission limits listed in Table 1 by keeping running totals based on CEM data. (Basis: Cumulative increase)

25. Monitoring Requirements: The owner/operator shall comply with the following monitoring requirements for each gas turbine:

- a. The gas turbine exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods. (Basis: NSPS, BACT)
- b. The ammonia injection system shall be equipped with an operational ammonia flow meter and injection pressure indicator accurate to plus or minus five percent at full scale and calibrated once every twelve months. (Basis: BACT)
- c. The gas turbine exhaust shall be equipped with continuously recording emissions monitor(s) for NO<sub>x</sub>, CO and O<sub>2</sub>. Continuous emissions monitors shall comply with the requirements of 40 CFR Part 60, Appendices B and F, and 40 CFR Part 75, and shall be capable of monitoring concentrations and mass emissions during normal operating conditions and during startups and shutdowns. (Basis: NSPS, 40 CFR 75)
- d. The fuel heat input rate shall be continuously recorded using District-approved fuel flow meters along with quarterly fuel compositional analyses for the fuel's higher heating value (wet basis). (Basis: Cumulative Increase)
- e. ~~The total sulfur content of the fuel gas shall be analyzed on a quarterly basis. (Basis: BACT, Cumulative Increase, BAAQMD 9-1-302)~~

26. Source Testing/RATA: Within sixty days after startup of the gas turbines, and at a minimum on an annual basis thereafter, the owner/operator shall perform a relative accuracy test audit (RATA) on the CEMS in accordance with 40 CFR Part 60 Appendix B Performance Specifications and a source test shall be performed. Additional source testing may be required at the discretion of the District to address or ascertain compliance with the requirements of this permit. The written test results of the source tests shall be provided to

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the District within thirty days after testing. A complete test protocol shall be submitted to the District no later than 30 days prior to testing, and notification to the District at least ten days prior to the actual date of testing shall be provided so that a District observer may be present. The source test protocol shall comply with the following: measurements of NO<sub>x</sub>, CO, POC, and stack gas oxygen content shall be conducted in accordance with ARB Test Method 100; measurements of PM<sub>10</sub> shall be conducted in accordance with ARB Test Method 5; and measurements of ammonia shall be conducted in accordance with Bay Area Air Quality Management District test method ST-1B. Alternative test methods, and source testing scope, may also be used to address the source testing requirements of the permit if approved in advance by the District. The initial and annual source tests shall include those parameters specified in the approved test protocol, and shall at a minimum include the following:

- a. NO<sub>x</sub> – ppmvd at 15% O<sub>2</sub> and lb/MM BTU (as NO<sub>2</sub>);
  - b. Ammonia – ppmvd at 15% O<sub>2</sub> (Exhaust);
  - c. CO – ppmvd at 15% O<sub>2</sub> and lb/MM BTU (Exhaust);
  - d. POC – ppmvd at 15% O<sub>2</sub> and lb/MM BTU (Exhaust);
  - e. PM<sub>10</sub> – lb/hr (Exhaust);
  - f. SO<sub>x</sub> – lb/hr (Exhaust); ppmvd at outlet concentration
  - g. Natural gas consumption, fuel High Heating Value (HHV), and total fuel sulfur content;
  - h. Turbine load in megawatts;
  - i. Stack gas flow rate (SDCFM) calculated according to procedures in U.S. EPA Method 19.
  - j. Exhaust gas temperature (°F)
  - k. Ammonia injection rate (lb/hr or moles/hr)
  - l. Water injection rate for each turbine at S-1, S-2, S-3, & S-4  
(Basis: BAAQMD Manual of Procedures, Volume IV, BACT, Cumulative Increase)
27. Within 60 days of start-up of the LECEF and on a semi-annual basis thereafter, the owner/operator shall conduct a District approved source test on exhaust points for S-1 through S-4 while each Gas Turbine is operating at maximum load to demonstrate compliance with the SAM levels in part 23. The owner/operator shall test for (as a minimum) SO<sub>2</sub>, SO<sub>3</sub> and SAM. After acquiring one year of source test data on these units, the owner/operator may petition the District to switch to annual source testing if test variability is low. (Basis: PSD Avoidance, SAM Periodic Monitoring)
28. The owner/operator shall prepare a written quality assurance program must be established in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60 Appendix F. (Basis: 40 CFR 75)
29. The owner/operator shall comply with the applicable requirements of 40 CFR Part 60 Subpart GG, excluding sections 60.334(a) and 60.334(c)(1). The sulfur content of the natural gas fuel shall be monitored in accordance with the following custom schedule approved by the USEPA on August 14, 1987:
- a. The sulfur content shall be measured twice per month for the first six months of operation.

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- b. If the results of the testing required by Part 26a are below 0.2% sulfur by weight, the sulfur content shall be measured quarterly for the next year of operation.
  - c. If the results of the testing required by Part 26b are below 0.2% sulfur by weight, the sulfur shall be measured semi-annually for the remainder of the permit term.
  - d. The nitrogen content of the fuel gas shall not be monitored in accordance with the custom schedule. (Basis: NSPS)
30. The owner/operator shall notify the District of any breakdown condition consistent with the District's breakdown regulations. (Basis: Regulation 1-431)
31. The owner/operator shall notify the District in writing in a timeframe consistent with the District's breakdown regulations following the correction of any breakdown condition. The breakdown condition shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the actions taken to restore normal operations. (Basis: Regulation 1-432)
32. Recordkeeping: The owner/operator shall maintain the following records:
- a. hourly, daily, quarterly and annual quantity of fuel used and corresponding heat input rates;
  - b. the date and time of each occurrence, duration, and type of any startup, shutdown, or malfunction along with the resulting mass emissions during such time period;
  - c. emission measurements from all source testing, RATAs and fuel analyses;
  - d. daily, quarterly and annual hours of operation;
  - e. hourly records of NO<sub>x</sub> and CO, emission concentrations and hourly ammonia injection rates and ammonia/NO<sub>x</sub> ratio.
  - f. for the continuous emissions monitoring system; performance testing, evaluations, calibrations, checks, maintenance, adjustments, and any period of non-operation of any continuous emissions monitor.
- (Basis: BAAQMD 2-6-501)
33. The owner/operator shall maintain all records required to be maintained by this permit for a period of five years and shall make such records readily available for District inspection upon request. (Basis: BAAQMD 2-6-501)
34. Reporting: The owner/operator shall submit to the District a written report for each calendar quarter, within 30 days of the end of the quarter, which shall include:
- a. Daily and quarterly fuel use and corresponding heat input rates;
  - b. Daily and quarterly mass emission rates for all criteria pollutants during normal operations and during other periods (startup/shutdown, breakdowns);
  - c. Time intervals, date, and magnitude of excess emissions;
  - d. Nature and cause of the excess emission, and corrective actions taken;
  - e. Time and date of each period during which the CEM was inoperative, except for zero and span checks, and the nature of system repairs and adjustments;

## VI. Permit Conditions

- f. A negative declaration when no excess emissions occurred;
- g. Results of quarterly fuel analyses for HHV and total sulfur content.  
 (Basis: BACT, Cumulative Increase, BAAQMD 2-6-502)

35. Emission Offsets: The owner/operator shall offset the project emissions in the amount and at the ratios outlined in Table 2 below.

Table 2 – Emission Offsets

Pollutant	Emissions Requiring Offsets (tons/yr.)	Offset Ratio	Total ERCs Required (tons/yr.)
NO <sub>x</sub> (as NO <sub>2</sub> )	75.4	1.15	86.7
POC	21.0	1.00	21.0

The ERC certificates must be delivered to the District ten days prior to the issuance of the ATC. (Basis: BAAQMD 2-2-302)

36. District Operating Permit: The owner/operator shall apply for and obtain all required operating permits from the District according to the requirements of the District's rules and regulations. (Basis: BAAQMD Regulation 2, Rules 2 & 6)
37. Title IV and Title V Permits: The owner/operator must deliver applications for the Title IV and Title V permits to the District prior to first-fire of the turbines. The owner/operator must cause the acid rain monitors (Title IV) to be certified within 90 days of first-fire. (Basis: BAAQMD Regulation 2, Rules 6 & 7)
38. Sunset Provision: Within three years of CEC Approval, The owner/operator must convert to either a combined cycle or cogeneration plant using BACT in effect at the time of conversion. If conversion does not occur the plant must cease operation. (Basis: California State Resources Code, Section 25552)
39. The owner/operator shall fire S-5 Fire Pump Engine exclusively on diesel fuel having a sulfur content no greater than 0.05% by weight. The owner/operator shall obtain from the supplier and maintain records of the sulfur content certification for each lot of fuel. (Basis: TRMP, Cumulative Increase)
40. The owner/operator shall operate the S-5 Fire Pump Engine for no more than 100 hours per year for the purpose of reliability testing and non-emergency operation. (Basis: Cumulative Increase, Regulation 9-8-231 & 330)
41. The owner/operator shall equip the S-5 Fire Pump Engine with a non-resettable totalizing counter that records hours of operation. (Basis: cumulative increase)
42. The owner/operator shall maintain the following monthly records in a District-approved log

## VI. Permit Conditions

for at least 5 years and shall make such records and logs available to the District upon request: (Basis: cumulative increase)

- a. Total number of hours of operation for S-5.
- b. Fuel usage at S-5

43. The owner/operator shall fire the S-6 Emergency Generator exclusively on natural gas. (Basis: TRMP, cumulative increase).

44. The owner/operator shall not operate S-6 Emergency Generator for more than 100 hours per year for the purpose of reliability testing or in anticipation of imminent emergency conditions. Emergency conditions are any of the following: loss of regular natural gas supply, failure of regular electric power supply, flood mitigation, sewage overflow mitigation, fire, failure of a primary motor, but only for such time as needed to repair or replace the primary motor. (Basis: Regulation 9-8-231 & 330, cumulative increase)

45. The owner/operator shall equip the S-6 Emergency Generator with a non-resettable totalizing counter that records hours of operation. (Basis: cumulative increase)

46. The owner/operator shall maintain the following monthly records in a District-approved log for at least 5 years and shall make such records and logs available to the District upon request: (Basis: cumulative increase)

- a. Total number of hours of operation for S-6
- b. Fuel usage at S-6

47. The owner/operator shall operate the facility such that maximum projected annual toxic air contaminant emissions (per part 48) from the gas turbines combined (S-1, S-2, S-3 and S-4) shall not exceed the following limits:

- 6000 pounds of formaldehyde per year
- 3000 pounds of acetaldehyde per year
- 1.7 pounds of Specified polycyclic aromatic hydrocarbons (PAHs) per year
- 60 pounds of acrolein per year

unless the following requirement is requirement satisfied:

The owner/operator shall perform a health risk assessment using the emission rates determined by source test and the most current Bay Area Air Quality Management District approved procedures and unit risk factors in effect at the time of the analysis. This analysis shall be submitted to the District and the CEC CPM within 60 days of the source test date. The owner/operator may request that the District and CEC CPM revise the carcinogenic compound emission limits specified above. If the owner/operator demonstrates to the satisfaction of the APCO that these revised emission limits will result in a cancer risk of not more than 1.0 in one million, the District and CEC CPM may, at their discretion, adjust the carcinogenic compound emission limits listed above. (Basis: BAAQMD 2-1-316, TRMP)

## VI. Permit Conditions

48. To demonstrate compliance with Part 47, the owner/operator shall calculate and record on an annual basis the maximum projected annual emissions shall be calculated using the maximum Heat Input of 16,560,000 MM Btu/year and the highest emission factor (pound of pollutant per MM Btu of Heat Input) determined by any source test of the S-1, S-2, S-3 & S-4 Gas Turbines. If this calculation method results in an unrealistic mass emission rate (the highest emission factor occurs at a low firing rate) the applicant may use an alternate calculation, subject to District approval. (Basis: BAAQMD 2-1-316, TRMP)
49. Within 60 days of start-up of the Los Esteros Critical Energy Facility and on a biennial (once every two years) thereafter, the owner/operator shall conduct a District-approved source test at exhaust point P-1, P-2, P-3, or P-4 while the Gas Turbines are at maximum allowable operating rates to demonstrate compliance with Part 47. If three consecutive biennial source tests demonstrate that the annual emission rates calculated pursuant to part 47. For any of the compounds listed above are less than the BAAQMD Toxic Risk Management Policy trigger levels shown, and then the owner/operator may discontinue future testing for that pollutant:

Formaldehyde	<	132 lb/yr
Acetaldehyde	<	288 lb/yr
Specified PAHs	<	0.18 lb/yr
Acrolein	<	15.6 lb/yr

(Basis: BAAQMD 2-1-316, TRMP)



## VII. APPLICABLE LIMITS & COMPLIANCE MONITORING REQUIREMENTS

This section has been included to summarize the applicable emission limits contained in Section IV, Source-Specific Applicable Requirements, of this permit. The following tables show the relationship between each emission limit and the associated compliance monitoring provisions, if any. The monitoring frequency column indicates whether periodic (P) or continuous (C) monitoring is required. For periodic monitoring, the frequency of the monitoring has also been shown using the following codes: annual (A), quarterly (Q), monthly (M), weekly (W), daily (D), hourly (H), or on an event basis (E). No monitoring (N) has been required if the current applicable rule or regulation does not require monitoring, and the operation is unlikely to deviate from the applicable emission limit based upon the nature of the operation.

**Table VII - A**  
**Applicable Limits and Compliance Monitoring Requirements**  
**S-1, S-2, S-3, & S-4 COMBUSTION GAS TURBINES#1, 2, 3, 4**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
NOx	BAAQMD 9-9-301.3	Y		9 ppmv @ 15% O <sub>2</sub> , dry	BAAQMD 9-9-501 and BAAQMD condition #19610, part 25c	C	CEM
NOx	BAAQMD 9-9-301.3	Y		9 ppmv @ 15% O <sub>2</sub> , dry	BAAQMD condition #19610, part 26a	P/A	Source test
NOx	NSPS, 40 CFR 60.332 (a)(1)	Y		99 ppmv @ 15% O <sub>2</sub> , dry	NSPS 40 CFR 60.334(b)(2) and BAAQMD Condition #19610, Part 29	N	
NOx	None	Y		None	40 CFR 75.10	C	CEM



## VII. Applicable Limits and Compliance Monitoring Requirements

**Table VII - A**  
**Applicable Limits and Compliance Monitoring Requirements**  
**S-1, S-2, S-3, & S-4 COMBUSTION GAS TURBINES#1, 2, 3, 4**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
NOx (as NO <sub>2</sub> )	BAAQMD condition #19610, part 10	Y		1224 lb/day and 102 lb/hr for all turbines combined during commissioning, including startup and shutdown of turbine without catalyst	BAAQMD condition #19610, parts 7 and 25c	C	CEM
NOx (as NO <sub>2</sub> )	BAAQMD condition #19610, part 10	Y		410 lb/day and 34.2 lb/hr for all turbines combined during commissioning, including startup and shutdown of turbine with catalyst	BAAQMD condition #19610, parts 7 and 25c	C	CEM
NOx	BAAQMD condition #19610, part 19a	Y		5 ppmv @ 15% O <sub>2</sub> , dry, 1-hr average except during turbine startup or shutdown	BAAQMD condition #19610, parts 19a and 25c	C	CEM
NOx	BAAQMD condition #19610, part 19a	Y		5 ppmv @ 15% O <sub>2</sub> , dry, 1-hr average except during turbine startup or shutdown	BAAQMD condition #19610, part 26a	P/A	Source test
NOx (as NO <sub>2</sub> )	BAAQMD condition #19610, part 22	Y		205.2 lb/day for each turbine including startup and shutdown	BAAQMD condition #19610, part 25c	C	CEM
NOx (as NO <sub>2</sub> )	BAAQMD condition #19610 part 22	Y		821 lb/day (as NO <sub>2</sub> ) for all turbines combined, including startup and shutdown	BAAQMD condition #19610, part 25c	C	CEM
NOx (as NO <sub>2</sub> )	BAAQMD condition #19610, part 22	Y		74.9 tons per year (as NO <sub>2</sub> ) for all turbines combined, except during startup or shutdown	BAAQMD condition #19610, part 25c	C	CEM

## VII. Applicable Limits and Compliance Monitoring Requirements

**Table VII - A**  
**Applicable Limits and Compliance Monitoring Requirements**  
**S-1, S-2, S-3, & S-4 COMBUSTION GAS TURBINES#1, 2, 3, 4**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
CO	BAAQMD condition #19610, part 10	Y		1056 lb/day and 88 lb/hr for all turbines combined during commissioning, including startup and shutdown of turbine without catalyst	BAAQMD condition #19610, parts 7 and 25c	C	CEM
CO	BAAQMD condition #19610, part 10	Y		300 lb/day and 25 lb/hr for all turbines combined during commissioning, including startup and shutdown of turbine with catalyst	BAAQMD condition #19610, parts 7 and 25c	C	CEM
CO	BAAQMD condition #19610, part 19c	Y		4 ppmv @ 15% O <sub>2</sub> , dry, 3-hr average except during turbine startup or shutdown	BAAQMD condition #19610, parts 19c and 25c	C	CEM
CO	BAAQMD condition #19610, part 19c	Y		4 ppmv @ 15% O <sub>2</sub> , dry, 3-hr average except during turbine startup or shutdown	BAAQMD condition #19610, part 26c	P/A	Source test
CO	BAAQMD condition #19610, part 22	Y		99.8 lb/day for each turbine including startup and shutdown	BAAQMD condition #19610, part 25c	C	CEM
CO	BAAQMD condition #19610, part 22	Y		399 lb/day for all turbines combined, including startup and shutdown	BAAQMD condition #19610, part 25c	C	CEM
CO	BAAQMD condition #19610, part 22	Y		72.9 tons per year for all turbines combined, including startup and shutdown	BAAQMD condition #19610, part 25c	C	CEM

## VII. Applicable Limits and Compliance Monitoring Requirements

**Table VII - A**  
**Applicable Limits and Compliance Monitoring Requirements**  
**S-1, S-2, S-3, & S-4 COMBUSTION GAS TURBINES#1, 2, 3, 4**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
CO <sub>2</sub>		Y		None	40 CFR 75.10	C	CEM (CO <sub>2</sub> ) or CEM (O <sub>2</sub> ) or fuel flow monitor
SO <sub>2</sub>	BAAQMD 9-1-301	Y		GLC <sup>1</sup> of 0.5 ppm for 3 min or 0.25 ppm for 60 min or 0.05 ppm for 24 hours		N	
	BAAQMD 9-1-302	Y		300 ppm (dry)	BAAQMD Condition 19610, Part 26f	P/A	Source test
SO <sub>2</sub>	NSPS 40 CFR 60.333(a)	Y		0.015% (vol.) @ 15% O <sub>2</sub> (dry)	NSPS 40 CFR 60.334(b)(1) and BAAQMD Condition 19610, Part 29	P/twice per month for six months, followed by quarterly for one year, followed by a semiannual frequency	Sulfur Analysis
SO <sub>2</sub>	None	Y		None	40 CFR 75.11, 40 CFR 75, Appendix D, part 2.3		Fuel measurements, calculations

## VII. Applicable Limits and Compliance Monitoring Requirements

**Table VII - A**  
**Applicable Limits and Compliance Monitoring Requirements**  
**S-1, S-2, S-3, & S-4 COMBUSTION GAS TURBINES#1, 2, 3, 4**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
SO <sub>2</sub>	BAAQMD condition #19610, part 10	Y		32 lb/day for all turbines combined during commissioning, including startup and shutdown of turbines	BAAQMD Condition 19610, Part 29	P/twice per month for six months, followed by quarterly for one year, followed by a semiannual frequency	Sulfur Analysis
SO <sub>2</sub>	BAAQMD condition #19610, part 19f	Y		0.33 lb/hr for all turbines combined	BAAQMD Condition 19610, Part 29	P/twice per month for six months, followed by quarterly for one year, followed by a semiannual frequency	Sulfur Analysis
SO <sub>2</sub>	BAAQMD condition #19610, part 19f	Y		0.33 lb/hr for all turbines combined	BAAQMD condition #19610, part 26f	P/A	Source test
	BAAQMD condition #19610, part 22	Y		7.9 lb/day for each turbine including startup and shutdown of turbines except during commissioning	BAAQMD Condition 19610, Part 29	P/twice per month for six months, followed by quarterly for one year, followed by a semiannual frequency	Sulfur Analysis

## VII. Applicable Limits and Compliance Monitoring Requirements

**Table VII - A**  
**Applicable Limits and Compliance Monitoring Requirements**  
**S-1, S-2, S-3, & S-4 COMBUSTION GAS TURBINES#1, 2, 3, 4**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
	BAAQMD condition #19610, part 22	Y		32 lb/day for all turbines combined including startup and shutdown of turbines	BAAQMD condition #19610, part 29	P/twice per month for six months, followed by quarterly for one year, followed by a semiannual frequency	Fuel Gas Total sulfur content analysis
	BAAQMD condition #19610, part 22	Y		5.8 tons/calendar year for All turbines combined including startup and shutdown of turbines except during commissioning	BAAQMD Condition 19610, Part 29	P/twice per month for six months, followed by quarterly for one year, followed by a semiannual frequency	Gas Total sulfur content analysis
Opacity	BAAQMD 6-301	Y		> Ringelmann No. 1 for no more than 3 minutes in any hour		N	
Opacity	BAAQMD condition #19610, part 18	Y		> Ringelmann No. 1 for no more than 3 minutes in any hour or equivalent 20% opacity		N	
FP	BAAQMD 6-310	Y		0.15 grain/dscf		N	
PM <sub>10</sub>	BAAQMD condition #19610, part 10	Y		240 lb/day for All turbines combined during commissioning and including startup and shutdown of turbines	BAAQMD condition #19610 part 26e	P/A	source test, records & calculation

## VII. Applicable Limits and Compliance Monitoring Requirements

**Table VII - A**  
**Applicable Limits and Compliance Monitoring Requirements**  
**S-1, S-2, S-3, & S-4 COMBUSTION GAS TURBINES#1, 2, 3, 4**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
PM <sub>10</sub>	BAAQMD condition #19610 part 19e	Y		2.5 lb/hr for each turbine	BAAQMD condition #19610, part 26e	P/A	Source test
	BAAQMD condition #19610, part 22	Y		60 lb/day for each turbine including startup and shutdown except during commissioning	BAAQMD condition #19610, part 26e	P/A	Source Test
	BAAQMD condition #19610, part 22	Y		240 lb/day for all turbines combined, including startup and shutdown and except during commissioning	BAAQMD condition #19610, part 26e	P/A	Source Test
	BAAQMD condition #19610 part 22	Y		43.8 tons/year for all turbines combined including startup and shutdown.	BAAQMD condition #19610, part 26e	P/A	Source Test
POC	BAAQMD condition #19610 part 10	Y		114 lb/day for all turbines combined during commissioning and including startup and shutdown of turbines	BAAQMD condition #19610 part 26d	P/A	Source Test, records & calculation
POC	BAAQMD condition #19610, part 19d	Y		2 ppmv @ 15% O <sub>2</sub> , dry, 1-hr average except during turbine startup or shutdown	BAAQMD condition #19610, part 26d	P/A	Source Test
	BAAQMD condition #19610, part 22	Y		28.3 lb/day for each turbine including startup and shutdown	BAAQMD condition #19610, part 26d	P/A	Source Test
	BAAQMD condition #19610, part 22	Y		114 lb/day for all turbines combined, including startup and shutdown	BAAQMD condition #19610, part 26d	P/A	Source Test

## VII. Applicable Limits and Compliance Monitoring Requirements

**Table VII - A**  
**Applicable Limits and Compliance Monitoring Requirements**  
**S-1, S-2, S-3, & S-4 COMBUSTION GAS TURBINES#1, 2, 3, 4**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
POC	BAAQMD condition #19610 part 22	Y		20.8 tons/year for all turbines combined including startup and shutdown.	BAAQMD condition #19610, part 26d	P/A	Source Test
NH <sub>3</sub>	BAAQMD condition #19610, part 19b	N		10 ppmv @ 15% O <sub>2</sub> , dry, averaged over 1 hrs except during turbine startup or shutdown	BAAQMD condition #19610, parts 19b and 26b	C	NH <sub>3</sub> flow meter
	BAAQMD condition #19610, part 19b	N		10 ppmv @ 15% O <sub>2</sub> , dry, averaged over 1 hrs except during turbine startup or shutdown	BAAQMD condition #19610, part 26b	P/A	Source Test
	BAAQMD condition #19610, part 22	Y		151.7 lb/day for each turbine including startup and shutdown	BAAQMD condition #19610, part 25b	P/A	Ammonia flow meter
	BAAQMD condition #19610, part 22	Y		607 lb/day for all turbines combined, including startup and shutdown	BAAQMD condition #19610, part 25b	P/A	Ammonia flow meter
	BAAQMD condition #19610 part 22	Y		110.7 tons/year for all turbines combined including startup and shutdown.	BAAQMD condition #19610, part 26b	P/A	Source test
Heat input limit	BAAQMD condition #19610, part 24	Y		472.6 MM BTU/ hr (HHV), for each turbine	BAAQMD condition #19610, part 25d	C	Fuel meter, firing monitor, calculations
	BAAQMD condition #19610, part 24	Y		472.6 MM BTU/ hr (HHV), for each turbine	BAAQMD condition #19610, part 25d	P/M	Fuel composition analysis

## VII. Applicable Limits and Compliance Monitoring Requirements

**Table VII - A**  
**Applicable Limits and Compliance Monitoring Requirements**  
**S-1, S-2, S-3, & S-4 COMBUSTION GAS TURBINES#1, 2, 3, 4**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Heat input limit	BAAQMD condition #19610, part 24	Y		472.6 MM BTU/ hr (HHV), for each turbine	BAAQMD condition #19610, part 25d	P/A	Source test
	BAAQMD condition #19610, part 24	Y		11,342 MM BTU/day (HHV) for each turbine	BAAQMD condition #19610, part 25d	C	fuel meter, firing monitor, calculations
	BAAQMD condition #19610, part 24	Y		11,342 MM BTU/day (HHV) for each turbine	BAAQMD condition #19610, part 25d	P/Q	Fuel composition analysis
Heat input limit	BAAQMD condition #19610, part 24	Y		16,560,000 MM BTU/yr (HHV) for all turbines	BAAQMD condition #19610, part 25d	C	fuel meter, firing monitor, calculations
	BAAQMD condition #19610, part 24	Y		16,560,000MM BTU/yr. (HHV) for all turbines	BAAQMD condition #19610, part 25d	P/Q	Fuel composition analysis
Unabated firing	BAAQMD condition #19610, part 8	Y		100 hours during commissioning	BAAQMD condition #19610, part 8	P/H	Records
MW	N/A			None	BAAQMD condition #19610, part 26j	P/A	Source test
Gas temperature	N/A			None	BAAQMD condition #19610, part 26	P/A	Source test



## VII. Applicable Limits and Compliance Monitoring Requirements

**Table VII - A**  
**Applicable Limits and Compliance Monitoring Requirements**  
**S-1, S-2, S-3, & S-4 COMBUSTION GAS TURBINES#1, 2, 3, 4**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Stack gas flow	N/A			None	BAAQMD condition #19610, part 26i	P/A	Source test
NH <sub>3</sub> injection rate	N/A			None	BAAQMD condition #19610, part 26k	P/A	Source test

**Table VII – B**  
**Applicable Limits and Compliance Monitoring Requirements**  
**S-5 FIRE PUMP DIESEL ENGINE**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Opacity	BAAQMD 6-303	Y		>Ringelmann No.2 for no more than 3 minutes in any hour		N	
FP	BAAQMD 6-310	Y		0.15 gr/dscf Particulate Weight Limitation		N	
SO <sub>2</sub>	BAAQMD 9-1-301	N		GLC <sup>1</sup> of 0.5 ppm for 3 min or 0.25 ppm for 60 min or 0.05 ppm for 24 hours		N	
SO <sub>2</sub>	BAAQMD 9-1-304	Y		0.5% sulfur in fuel by weight	BAAQMD Condition #19610, part 39	P/E	Fuel certification

## VII. Applicable Limits and Compliance Monitoring Requirements

**Table VII – B**  
**Applicable Limits and Compliance Monitoring Requirements**  
**S-5 FIRE PUMP DIESEL ENGINE**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
SO <sub>2</sub>	BAAQMD Condition #19610, part 39	N		Sulfur content of fuel less than 0.05% by weight	BAAQMD Condition #19610, part 39	P/E	Fuel certification by vendor
Hours of operation	BAAQMD Regulation 9-8-330.1	N		Emergency use for an unlimited number of hours	BAAQMD Regulation 9-8-530	P	Records
Hours of operation	BAAQMD Condition #19610, part 40	N		Reliability related activities less 100 hr/yr	BAAQMD Condition #19610, parts 41 & 42	C P/E	Records

**Table VII – C**  
**Applicable Limits and Compliance Monitoring Requirements**  
**S-6 EMERGENCY GENERATOR NATURAL GAS FIRED ENGINE**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Opacity	BAAQMD 6-303	Y		>Ringelmann No.2 for no more than 3 minutes in any hour		N	
FP	BAAQMD 6-310	Y		0.15 gr/dscf Particulate Weight Limitation		N	
SO <sub>2</sub>	BAAQMD 9-1-301	N		GLC <sup>1</sup> of 0.5 ppm for 3 min or 0.25 ppm for 60 min or 0.05 ppm for 24 hours		N	
	BAAQMD 9-1-302	Y		300 ppm (dry)		N	

## VII. Applicable Limits and Compliance Monitoring Requirements

**Table VII – C**  
**Applicable Limits and Compliance Monitoring Requirements**  
**S-6 EMERGENCY GENERATOR NATURAL GAS FIRED ENGINE**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Hours of operation	BAAQMD 9-8-303	Y		Emergency use for an unlimited number of hours	BAAQMD Regulation 9-8-530	C	Hour meter, recordkeeping
Hours of operation	BAAQMD Condition #19610, part 44	Y		Reliability related activities not to exceed 100 hr/yr in any consecutive 12-month period	BAAQMD Condition #19610, Parts 45 & 46	C P/E	Hour meter, recordkeeping
Hours of operation	BAAQMD Condition #19610, part 46	Y		Maintain operating time log		P	Records

## VIII. TEST METHODS

The test methods associated with the emission limit of a District regulation are generally referenced in Section 600 et seq. of the regulation. The following table indicates only the test methods associated with the emission limits referenced in Section VII, Applicable Limits & Compliance Monitoring Requirements, of this permit.

**Table VIII**  
**Test Methods**

<b>Applicable Requirement</b>	<b>Description of Requirement</b>	<b>Acceptable Test Methods</b>
BAAQMD 6-301	Ringelmann No. 1 Limitation	Manual of Procedures, Volume I, Evaluation of Visible Emissions
BAAQMD 6-310	Particulate Weight Limitation	Manual of Procedures, Volume IV, ST-15, Particulates Sampling; or USEPA Method 5, Determination of Particulate Matter Emissions from Stationary Sources
BAAQMD 6-311	General Operations	Manual of Procedures, Volume IV, ST-15, Particulates Sampling; or USEPA Method 5, Determination of Particulate Matter Emissions from Stationary Sources
BAAQMD 9-1-302	General Emission Limitation	Manual of Procedures, Volume IV, ST-19A, Sulfur Dioxide, Continuous Sampling
BAAQMD 9-1-304	Fuel Burning (Liquid Fuel Sulfur Limit)	Manual of Procedures, Volume III, Method 10, Determination of Sulfur in Fuel Oil
BAAQMD 9-7-301.3	Performance Standard, NO <sub>x</sub> , Gaseous Fuel	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
BAAQMD 9-7-301.2	Performance Standard, CO, Gaseous Fuel	Manual of Procedures, Volume IV, ST-6, Carbon Monoxide, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
BAAQMD 9-7-305.1	Natural Gas Curtailment Performance Standard, NO <sub>x</sub>	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
BAAQMD 9-7-305.2	Natural Gas Curtailment Performance Standard, CO	Manual of Procedures, Volume IV, ST-6, Carbon Monoxide, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
<b>NSPS Subpart GG</b>	<b>Standards of Performance for Stationary Gas Turbines (1/27/82)</b>	
60.332 (a)(1)	Performance Standard, NO <sub>x</sub>	EPA Method 20, Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines
60.333 (a)	SO <sub>2</sub> Volumetric Emission Limit	EPA Method 20, Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines

## VIII. Test Methods

**Table VIII**  
**Test Methods**

Applicable Requirement	Description of Requirement	Acceptable Test Methods
60.333 (b)	Fuel Sulfur Limit (gaseous fuel)	ASTM D 1072-80, Standard Method for Total Sulfur in Fuel Gases ASTM D 3031-81, Standard Test Method for Total Sulfur in Natural Gas by Hydrogenation
<b>BAAQMD Cond# 19610 for S-1, S-2, S-3 &amp; S-4 Combustion Gas Turbines</b>		
part 19a	NO <sub>x</sub> Limit	ARB Method 100, Procedures for Continuous Gaseous Emission Stack Sampling
part 19b	NH <sub>3</sub> Limit	Manual of Procedures, Volume IV, ST-1B, Ammonia, Integrated Sampling
part 19c	CO Limit	ARB Method 100, Procedures for Continuous Gaseous Emission Stack Sampling
part 19d	POC Limit	ARB Method 100, Procedures for Continuous Gaseous Emission Stack Sampling
part 19e	PM <sub>10</sub> Limit	ARB Method 5, Determination of Particulate Matter Emissions from Stationary Sources
part 19f	SO <sub>x</sub> Limit	Manual of Procedures, Volume IV, ST-19A, Sulfur Dioxide, Continuous Sampling

## IX. TITLE IV ACID RAIN PERMIT

Effective [ ], 2004 through [ ], 2009

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**ISSUED TO:**

**Calpine Corporation  
Los Esteros Critical Energy Facility  
P.O. Box 640130  
San Jose, CA 95164**

**PLANT SITE LOCATION:**

**1515 Alviso-Milpitas Road  
San Jose, CA 95134**

**ISSUED BY:**

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Jack Broadbent, Executive Officer/APCO

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Date

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**Type of Facility:** Simple Cycle Gas Turbine Peaker Facility  
**Primary SIC:** 4911  
**Product:** Electricity

**DESIGNATED REPRESENTATIVE**

**Name:** Robert McCaffrey  
**Title:** General Manager  
**Phone:** (408) 847-5328

**FACILITY CONTACT PERSON:**

**Name:** Dana Petrin  
**Title:** Compliance Specialist  
**Phone:** (408) 592-7915

## IX. Title IV Acid Rain Permit

### ACID RAIN PERMIT CONTENTS

- 1) Statement of Basis
- 2) SO<sub>2</sub> allowance allocated under this permit and NO<sub>x</sub> requirements for each affected unit.
- 3) Comments, notes and justifications regarding permit decisions and changes made to the permit application forms during the review process, and any additional requirements of conditions.
- 4) The permit application submitted for this source. The owners and operators of the source must comply with the standard requirements and special provisions set forth in the application.

#### 1) STATEMENT OF BASIS

**Statutory and Regulatory Authorities:** In accordance with District Regulation 2, Rule 7 and Titles IV and V of the Clean Air Act, the Bay Area Air Quality Management District issues this permit pursuant to District Rule Regulation 2, Rule 7.

#### 2) SO<sub>2</sub> ALLOWANCE ALLOCATIONS

	Year	2004	2005	2006	2007	2008
	SO <sub>2</sub> allowances under Table 2 of 40 CFR part 73	None	None	None	None	None
S-1, Turbine	NO <sub>x</sub> Limit	This unit is not subject to the NO <sub>x</sub> requirements from 40 CFR Part 76 as this unit is not capable of firing on coal.				

## IX. Title IV Acid Rain Permit

	Year	2004	2005	2006	2007	2008
	SO <sub>2</sub> allowances under Table 2 of 40 CFR Part 73	None	None	None	None	None
S-2 Turbine	NOx Limit	This unit is not subject to the NOx requirements from 40 CFR Part 76 as this unit is not capable of firing on coal.				

	Year	2004	2005	2006	2007	2008
	SO <sub>2</sub> allowances under Table 2 of 40 CFR Part 73	None	None	None	None	None
S-3 Turbine	NOx Limit	This unit is not subject to the NOx requirements from 40 CFR Part 76 as this unit is not capable of firing on coal.				

	Year	2004	2005	2006	2007	2008
	SO <sub>2</sub> allowances under Table 2 of 40 CFR Part 73	None	None	None	None	None
S-4, Turbine	NOx Limit	This unit is not subject to the NOx requirements from 40 CFR Part 76 as this unit is not capable of firing on coal.				

### 3) COMMENTS, NOTES AND JUSTIFICATIONS

None

### 4) PERMIT APPLICATION

Attached



## X. PERMIT SHIELD

### A. Non-applicable Requirements

None

### B. Subsumed Requirements:

Pursuant to District Regulations 2-6-233.2 and 2-6-409.12, as of the date this permit is issued, the federally enforceable monitoring, recordkeeping, and reporting requirements cited in the following table for the source or group of sources identified at the top of the table[s] are subsumed by the monitoring, recordkeeping, and reporting for more stringent requirements or by a “hybrid” monitoring scheme. The District has determined that compliance with the requirements listed below and elsewhere in this permit will assure compliance with the substantive requirements of the subsumed monitoring requirements. Enforcement actions and litigation may not be initiated against the source or group of sources covered by this shield based on the subsumed monitoring requirements cited.

**Table X B - 1**  
**Permit Shield for Subsumed Requirements**  
**S-1, S-2, S-3, AND S-4 GAS TURBINES**

<b>Subsumed Requirement Citation</b>	<b>Title or Description</b>	<b>Streamlined Requirements</b>	<b>Title or Description</b>
40 CFR 60.334(a)	Water-to-fuel monitoring	BAAQMD Condition 19610, part 25	Continuous emission monitoring for 5.0 ppmv limit @ 15% oxygen
40 CFR 60.334(c)(1)	Periods of excess emissions, NOx	BAAQMD Condition 19610, Part 25	Requirement for continuous emission monitor for NOx

## **XI. GLOSSARY**

**ACT**

Federal Clean Air Act

**APCO**

Air Pollution Control Officer

**API**

American Petroleum Institute

**ARB**

Air Resources Board

**BAAQMD**

Bay Area Air Quality Management District

**BACT**

Best Available Control Technology

**BARCT**

Best Available Retrofit Control Technology

**Basis**

The underlying authority that allows the District to impose requirements.

**C5**

An Organic chemical compound with five carbon atoms

**C6**

An Organic chemical compound with six carbon atoms

**CAA**

The federal Clean Air Act

**CAAQS**

California Ambient Air Quality Standards

**CAPCOA**

California Air Pollution Control Officers Association

**CEC**

California Energy Commission

**CEQA**

California Environmental Quality Act

## **XI. Glossary**

### **CEM**

A "continuous emission monitor" is a monitoring device that provides a continuous direct measurement of some pollutant (e.g. NO<sub>x</sub> concentration) in an exhaust stream.

### **CFR**

The Code of Federal Regulations. 40 CFR contains the implementing regulations for federal environmental statutes such as the Clean Air Act. Parts 50-99 of 40 CFR contain the requirements for air pollution programs.

### **CO**

Carbon Monoxide

### **CO<sub>2</sub>**

Carbon Dioxide

### **Cumulative Increase**

The sum of permitted emissions from each new or modified source since a specified date pursuant to BAAQMD Rule 2-1-403, Permit Conditions (as amended by the District Board on 7/17/91) and SIP Rule 2-1-403, Permit Conditions (as approved by EPA on 6/23/95). Used to determine whether threshold-based requirements are triggered.

### **District**

The Bay Area Air Quality Management District

### **dscf**

Dry Standard Cubic Feet

### **dscm**

Dry Standard Cubic Meter

### **E 6, E 9, E 12**

Very large or very small number values are commonly expressed in a form called scientific notation, which consists of a decimal part multiplied by 10 raised to some power. For example, 4.53 E 6 equals  $(4.53) \times (10^6) = (4.53) \times (10 \times 10 \times 10 \times 10 \times 10 \times 10) = 4,530,000$ . Scientific notation is used to express large or small numbers without writing out long strings of zeros.

### **EPA**

The federal Environmental Protection Agency.

### **Excluded**

Not subject to any District Regulations.

### **Federally Enforceable, FE**

All limitations and conditions which are enforceable by the Administrator of the EPA including those requirements developed pursuant to 40 CFR Part 51, subpart I (NSR), Part 52.21 (PSD), Part 60 (NSPS), Part 61 (NESHAPs), Part 63 (HAP), and Part 72 (Permits

## **XI. Glossary**

Regulation, Acid Rain), and also including limitations and conditions contained in operating permits issued under an EPA-approved program that has been incorporated into the SIP.

### **FP**

Filterable Particulate as measured by BAAQMD Method ST-15, Particulate.

### **FR**

Federal Register

### **GDF**

Gasoline Dispensing Facility

### **GLM**

Ground Level Monitor

### **grains**

1/7000 of a pound

### **HAP**

Hazardous Air Pollutant. Any pollutant listed pursuant to Section 112(b) of the Act. Also refers to the program mandated by Title I, Section 112, of the Act and implemented by 40 CFR Part 63.

### **H<sub>2</sub>S**

Hydrogen Sulfide

### **HHV**

Higher Heating Value. The quantity of heat evolved as determined by a calorimeter where the combustion products are cooled to 60F and all water vapor is condensed to liquid.

### **LECEP**

Los Esteros Critical Energy Facility

### **LHV**

Lower Heating Value. Similar to the higher heating value (see HHV) except that the water produced by the combustion is not condensed but retained as vapor at 60F.

### **Major Facility**

A facility with potential emissions of: (1) at least 100 tons per year of regulated air pollutants, (2) at least 10 tons per year of any single hazardous air pollutant, and/or (3) at least 25 tons per year of any combination of hazardous air pollutants, or such lesser quantity of hazardous air pollutants as determined by the EPA administrator.

### **MFR**

Major Facility Review. The District's term for the federal operating permit program mandated by Title V of the Act and implemented by District Regulation 2, Rule 6.

### **MOP**

## **XI. Glossary**

The District's Manual of Procedures

### **MSDS**

Material Safety Data Sheet

### **NA**

Not Applicable

### **NAAQS**

National Ambient Air Quality Standards

### **NESHAPs**

National Emission Standards for Hazardous Air Pollutants. See in 40 CFR Parts 61 and 63.

### **NMHC**

Non-methane Hydrocarbons

### **NMOC**

Non-methane Organic Compounds (Same as NMHC)

### **NO<sub>x</sub>**

Oxides of nitrogen.

### **NSPS**

Standards of Performance for New Stationary Sources. Federal standards for emissions from new stationary sources. Mandated by Title I, Section 111 of the Act, and implemented by 40 CFR Part 60 and District Regulation 10.

### **NSR**

New Source Review. A federal program for pre-construction review and permitting of new and modified sources of air pollutants for which the District is classified "non-attainment". Mandated by Title I of the Clean Air Act and implemented by 40 CFR Parts 51 and 52 as well as District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

### **O<sub>2</sub>**

The chemical name for naturally occurring oxygen gas.

### **Offset Requirement**

A New Source Review requirement to provide federally enforceable emission offsets at a specified ratio for the emissions from a new or modified source and any pre-existing cumulative increase minus any onsite contemporaneous emission reduction credits. Applies to emissions of POC, NO<sub>x</sub>, PM<sub>10</sub>, and SO<sub>2</sub>.

### **OC, Oxidation Catalyst**

A material used in combustion systems to reduce emissions of carbon monoxide and organics by promoting oxidation reactions.

## **XI. Glossary**

### **Phase II Acid Rain Facility**

A facility that generates electricity for sale through fossil-fuel combustion and is not exempted by 40 CFR 72 from Titles IV and V of the Clean Air Act.

### **POC**

Precursor Organic Compounds

### **PM**

Total Particulate Matter

### **PM10**

Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 microns

### **PSD**

Prevention of Significant Deterioration. A federal program for permitting new and modified sources of air pollutants for which the District is classified "attainment" of the National Air Ambient Quality Standards. Mandated by Title I of the Act and implemented by both 40 CFR Part 52 and District Regulation 2, Rule 2.

### **RATA**

Stands for Relative Accuracy Test Audit. A test conducted to certify the accuracy of the Continuous Emission Monitor (CEM).

### **SAM**

Sulfuric Acid Mist

### **SCR**

A "selective catalytic reduction" unit is an abatement device that reduces NO<sub>x</sub> concentrations in the exhaust stream of a combustion device. SCRs utilize a catalyst, which operates at a specific temperature range, and injected ammonia to promote the conversion of NO<sub>x</sub> compounds to nitrogen gas.

### **SIP**

State Implementation Plan. State and District programs and regulations approved by EPA and developed in order to attain the National Air Ambient Quality Standards. Mandated by Title I of the Act.

### **SO<sub>2</sub>**

Sulfur dioxide

### **SO<sub>2</sub> Bubble**

An SO<sub>2</sub> bubble is an overall cap on the SO<sub>2</sub> emissions from a defined group of sources, or from an entire facility. SO<sub>2</sub> bubbles are sometimes used at refineries because combustion sources are typically fired entirely or in part by "refinery fuel gas" (RFG), a waste gas product from refining operations. Thus, total SO<sub>2</sub> emissions may be conveniently quantified by monitoring the total amount of RFG that is consumed, and the concentration of H<sub>2</sub>S and other sulfur compounds in the RFG.

## **XI. Glossary**

### **SO<sub>3</sub>**

Sulfur trioxide

### **THC**

Total Hydrocarbons (NMHC + Methane)

### **therm**

100,000 British thermal units

### **Title V**

Title V of the federal Clean Air Act. Requires a federally enforceable operating permit program for major and certain other facilities.

### **TOC**

Total Organic Compounds (NMOC + Methane, Same as THC)

### **TRMP**

Toxic Risk Management Plan

### **TSP**

Total Suspended Particulate

### **TVP**

True Vapor Pressure

### **VOC**

Volatile Organic Compounds

### **Units of Measure:**

bbl	=	barrel of liquid (42 gallons)
bhp	=	brake-horsepower
Btu	=	British thermal unit
C	=	degrees Celsius
F	=	degrees Fahrenheit
f <sup>3</sup>	=	cubic feet
g	=	grams
gal	=	gallon
gpm	=	gallons per minute
hp	=	horsepower
hr	=	hour
lb	=	pound
in	=	inches
max	=	maximum
m <sup>2</sup>	=	square meter

## XI. Glossary

min	=	minute
M	=	thousand
Mg	=	mega-gram, one thousand grams
μg	=	micro-gram, one millionth of a gram
MM	=	million
mm	=	millimeter
MMBtu	=	million Btu
mm Hg	=	millimeters of Mercury (pressure)
MW	=	megawatts
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scfm	=	standard cubic feet per minute
yr	=	year

### Symbols:

<	=	less than
>	=	greater than
≤	=	less than or equal to
≥	=	greater than or equal to



## **XII. APPLICABLE STATE IMPLEMENTATION PLAN**

The Bay Area Air Quality Management District's portion of the State Implementation Plan can be found at EPA Region 9's website. The address is:

<http://yosemite1.epa.gov/r9/r9sips.nsf/California?ReadForm&Start=1&Count=30&Expand=3.1>

### **XIII. TITLE IV ACID RAIN APPLICATION**